194150

3119 — Encl 15

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INTER/OFFICE COMMUNICATION — Armstrong

To W. C. Allison — February 11, 1980

From J. W. deGroot, Jr.

Subject Information on Wastes for Stabatrol

ORIGINAL (Red)

Here is the information for Stabatrol, for transmittal to Penna. DER in support of obtaining the permit to dispose of this type of wastes by vaulted burial. This is the information from our report (1/22/80 HFB to JdeG) which we reviewed 2/ 8/80, along with the analytical data just completed on 11 typical drums of waste, with a summary.

I am enclosing also two copies of a letter of acknowledgement of confidentiality as requested by our Legal Department, to be signed and returned, one by Stabatrol and (hopefully) one by the D.E.R. representative. As you will note, these simply state that we request that this information be held confidential insofar as possible while still complying with the law. Obviously we understand that the requirements of the law must be met; we simply wish to avoid any unnecessary disclosure of our processes or materials that might indirectly reach our competitors.

Please re-emphasize to Stabatrol, so that they may also inform Penna. D.E.R., that we will be glad to discuss any of this data further, if desired.

SAE

Enclosures

Form 6748 7.77J

NO ENVELOPE REQUIRED

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Please return to: Armstrong Cork Company
J. J. Horn, Legal Department
Liberty Street
Lancaster, PA 17604

ORIGINAL
(Red)

This is to acknowledge that the Floor Plant, Armstrong Cork Co., Lancaster, Penna. has submitted certain waste management information including chemical analyses and process and materials information in support of the application of Stabatrol Corporation to the Pennsylvania Department of Environmental Resources for a permit to dispose of said wastes in an approved vaulted burial system. It is the request of the Armstrong Cork Company that this waste management information be held in confidential status insofar as is possible, consistent with compliance with the law.

The undersigned signifies that the above request has been read and understood.

Signature_____ _____

Position_____ _____

Date_____ _____

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ORIGINAL
(Red)

INDUSTRIAL WASTE DISPOSAL THRU STABATROL: REQUEST FOR INFORMATION FOR PENNA. DER

Introduction

1. Information requested:

   "Describe in detail on a separate sheet the manufacturing process(es) generating the waste(s) and list the raw materials as well as intermediates and final products contained in each waste."

2. Procedure for accumulating this information for this report:

   We have a quantity of drums of solvent base sludge which has accumulated over about a two year period. These materials were accumulated pending development of appropriate means of disposal. The wastes were not labeled when accumulated. Thus, specific drums are not identified, although we know our operations well and know what we discard. Discards are wash-ups from our line operations. The wash-ups were allowed to sit until sludges settled out. Supernatant organic liquids were pumped off and sold to an outside firm. The sludges remaining in the drums are the subject materials which have accumulated.

Report for the State

A. Categories of Scrap Sludge.

Type I - Sludges containing solvents which burn less readily than Kerosene (see Note below).

Type I Sludge	% of Type I Drums Containing the Item
Plastisol Clean-Up Sludges	65%
Chlorothene Containing Sludges	25%
Fuel Oil (Cleaned up after a spill)	5%
Adhesive Clean-Up Sludges	5%

NOTE: Ignition Tests were not made on each drum, but were made on each representative sample type. Each drum was then characterized from appearance and solvent odor type.

There is enough "Speedi Dri" or other solid absorbent material layered into the drums to eliminate any free flowing liquid content.

Type II - Sludges containing Solvents which burn more readily than Kerosene (see Note below).

Type II Sludge	% of Type II Drums Containing the Item
Lacquer and Adhesive Sludges	60 to 70%
Polyurethane Gels	20%
Printing Inks	5%
Paint Residues from Paint Shop (Plant Maintenance)	1 to 2%

There is enough "Speedi Dri" or other solid absorbent material layered into the drums to eliminate any free flowing liquid content.

NOTE: Ignition Tests were not made on each drum, but were made on each representative sample type. Each sludge drum was characterized from appearance and solvent odor type.

About half our accumulated scrap drums are Type I and half Type II.

B. Description of Manufacturing Processes Generating the Waste and Listing of Raw Materials, Intermediates and Final Products in Each Waste.

1. Plastisol Clean-Up Sludges

The manufacturing process is that of coating of plastisol onto 12' wide sheets of flooring backing. The coaters and coating rolls are completely washed off a few times each day with Solvesso 150 (a high boiling hydrocarbon solvent). The washings occur when there is a change of commodity and when a coating problem causes a line shutdown of more than a short duration.

The sludges obtained after settling and removal of solvent supernatant contain:

Main Ingredients

PVC Resin
Plasticizers (DOP, phthalate and other aliphatic esters)
TiO_2 Pigment
Solvesso 150

Minor Ingredients

Kempore AF Blowing Agent
Barium and Zinc Salts of Fatty Acids, or Organo Tin Compounds
Limestone

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2. Chlorothene Containing Sludges

There are two sources of chlorothene containing sludges:

(1) Plastisol Clean-Up Sludges

NOTE: These are like the Plastisol Clean-Up Sludges described immediately above except chlorothene (1,1,1 trichloroethane) was used as the wash-up solvent rather than Solvesso 150.

(2) Sludges from washing greases and oils off metal parts in our machine repair shops and machine construction shops.

3. Fuel Oil

This is from a fairly large fuel oil overflow into a containment area. The oil was contaminated with dirt. It was collected in drums, and "Speedi Dri" was added until no flowing liquids were present.

4. Lacquer and Adhesive Sludges

a. Lacquer Sludges

Lacquers are applied to flooring sheet goods on coating lines. The coating material is washed out of the coating equipment several times a day at the point when there is a commodity change (change of lacquer and change of material being coated), using MEK solvent. The washings are put in a drum. Liquids were pumped out, and settled solids constitute the sludge.

Ingredients

Acrylic Polymers
Cellulosic Polymers
Toluene
Methyl Ethyl Ketone
Methyl N-Butyl Ketone
Methyl Isobutyl Ketone

b. Adhesive Sludges

The manufacturing process consists of adding to a mixer the following: solvents, resins, elastomers, compounding ingredients and fillers. The mixer is run until all is mixed. The contents are drained from the mixer and packaged. When there is a change of commodity, the mixer is washed out with MEK, toluene, or water. The washings are collected in drums. The liquid portion is pumped out of the drums and the adhesive sludge remains in the drums.

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Ingredients of Adhesive Sludges:

Solvents: hydrocarbon solvents, ketones, esters, water, alcohol, and tetrahydrofuran.

Resins: Petroleum resins, acrylics, phenol-formaldehyde resin, polyvinyl chloride resin, epoxy resins, rosins, and asphalt.

Elastomers: Neopreme, nitrile rubber, styrene-butadiene rubber, chlorinated natural rubber.

Compounding Ingredients: magnesium oxide, zinc oxide, hydrated silica, antioxidants, accelerators.

Fillers: clay, limestone, and silica.

6. Polyurethane Gels

Polyurethane solutions (composed of polyether and polyester triols and diols reacted with aliphatic disocyanates and sometimes hydroxy acrylics in toluene, xylene or acrylic solvent) are prepared in a reaction tank under heat and agitation. They are then transferred by piping to storage tanks and coated onto sheet flooring goods. Polyurethane Gel scrap comes from (1) occasional scrapping of a batch taken from the reaction tank, and (2) periodic washing of coating equipment (with toluene, xylene, MEK, or a chlorinated solvent mixture) in the coating operation. Both scraps are collected in open-headed drums and reacted with isopropyl alcohol to chemically tie up all isocyanate groups. Traces of moisture cause gel formation in some of this scrap. Free liquid is pumped off the gelled polyurethane, and sold with other organic liquids to an outside firm. The polyurethane gel remaining in the drums is treated with "Speedi Dri" until no free liquids are present and is the Polyurethane Gel noted here.

7. Printing Inks Residues

Printing inks consist of solvent (isopropylacetate, nitropropane, and cellosolve ester) and a binder (vinyl chloride - vinyl acetate copolymer) and pigments. Many of the pigments are organic pigments. Lead chromate, lead sulfate and lead molybdate inorganic pigment is also used as ink pigments. Our printing operation is a rotogravure printing operation. The printing inks are washed out of the printer with the ink solvent when there is a commodity change requiring change of ink coloration. The washings are collected in drums. The liquids are later pumped off leaving the printing ink residues.

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8. Paint Residues from Paint Shop (Plant Maintenance)

These are merely commercial paints, purchased from commercial paint stores. Small amounts of paint left over after plant maintenance painting jobs are accumulated in drums.

C. Absorbent Layered into the Sludge of Each Drum.

"Speedi Dri", or other absorbent solid for cleaning up liquid spills has been layered into the sludge drums in proportions large enough to absorb all free flowing liquids. Thus, there are no free flowing liquids in our sludge scrap. "Speedi Dri" and "Hy-Dri" (another we have used) are inorganic absorbents. We are considering the use of saw dust type absorbent for certain future uses for certain special benefits it has.

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ORIGINAL
(Red)

SUMMARY SHEET

Estimated Maximum Possible Levels

of Waste Constituants (per drum)

NAME OF GENERATOR: Armstrong Cork Co., Floor Plant, Lancaster, Penna.

NAME OF WASTE: Estimated Maximum Levels, Sludge Material for Stabatrol

ANALYSIS PERFORMED BY: Estimated by CAC, CRR, HFB, JdeG DATE: 2/ 8/80

	Constituent	Est. Max. Values
1.	% Water	40%
2.	% Solids	100%
3.	pH	4.0 to 8.0
4.	C.O.D. (mg/l)	575,000
5.	T.O.C. (mg/l)	150,000
6.	Oil/Grease	50%
7.	T.D.S.	-
8.	T.V.S.	95% (ink sludge, detail sheet #6)
9.	Spec. Condustance (ymho/cm)	(leachate - 2000)
10.	Ammonia-Nitrogen (mg/l)	500
11.	Phenol (mg/l)	100
12.	Cyanide (mg/l)	less than .05
13.	Arsenic (mg/l)	10 - 15
14.	Cadmium	2% (as soap)
15.	Barium	7% (as soap)
16.	Chromium	1% (in pigment paste)
17.	Lead	0.5% (in pigment paste)
18.	Organic Solverts	40%
19.	Urethane Resins	65%
20.	Vinyl Resins	95%
21.	Clays - Linestones	90%
22.	Styrene-Acrylic Resins	50%
23.	Hydrocarbon Resins	95%
24.	Tin	10% (as soap)
25.	Zinc	6% (as soap)

NOTES:
1. Most of these maxima would occur only seldom, as a result of a spill.
2. Individual maxima would not occur simultaneously, except possibly C.O.D. and T.O.C.
3. Specific organic solvents are mentioned in following analysis sheets and in description, Part 1 of Module 1.

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WASTE ANALYSIS

NAME OF GENERATOR Armstrong Cork Co., Lancaster Floor Plant ORIGINAL (Red)

NAME OF WASTE Type Waste for Stabatrol - Analysis #1

ANALYSIS PERFORMED BY CAC, CRP, Lancaster Lab. DATE OF ANALYSIS January, 1980

CONSTITUENT	TOTAL CONSTITUENT ANALYSIS	PER DRUM TOTAL CONSTITUENT ANALYSIS (MAX.VAL.)	WATER SHAKE LEACHATE
1. % Water (%)	<1 not a water system	(Note 2) 5	-
2. % Solids (%)	75.4%	95%	0.082%
3. pH	not a water system		7.11
4. C.O.D. (mg/l)	1180. ppm	2000 ppm	118 mg/l
5. T.O.C. (mg/l)	298 ppm	1400 ppm	29.8 mg/l
6. Oil/Grease (%)	8.52%	15%	not H_2O soluble
7. T.D.S. (mg/l)	not a water system	-	not a water system (See Cons. 2 above)
8. T.V.S. (%)	43.37%	50%	13.8%
9. Spec Conductance (umho/cm)	not a water system	-	312
10. Ammonia-Nitrogen (mg/l)	11.2 ppm	20 ppm	1.12 mg/l
11. Phenol (mg/l)	4.2 ppm	8 ppm	0.42 mg/l
12. Cyanide (mg/l)	<.05 ppm	<.05 ppm	<.005 mg/l
13. Arsenic (mg/l)	not present	(Note 1) 20 ppm	-
14. Cadmium	780 ppm	1000 ppm	0
15. Copper (mg/l)	not present*	-	-
16. Chromium	110 ppm	500 ppm	0
17. Lead	44 ppm	500 ppm	0
18. Barium	0	0	0
19. Tin	810 ppm	50,000 ppm	0
20. Zinc	1900 ppm	60,000 ppm	0
21. Selenium (mg/l)	not present	-	-
22. Silver (mg/l)	not present	-	-
23. OTHER CONSTITUENTS			
24. Xylene - Toluene	25%	50%	not H_2O soluble
25. Polyurethanes	16%	70%	not H_2O soluble
26. Clay or Limestone	35%	90%	not H_2O soluble
27. Vinyls	16%	95%	not H_2O soluble
28.			
29.			

(Note 1) Arsenic would be present only as a contaminant in TiO_2 pigment as purchased

(Note 2) Water possibly present, due to condensation or rain

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#2.

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WASTE ANALYSIS

NAME OF GENERATOR Armstrong Cork Co., Lancaster Floor Plant

NAME OF WASTE Type Waste for Stabatrol - Analysis # 2

ANALYSIS PERFORMED BY CAC, CRP, Lancaster Labs DATE OF ANALYSIS January, 1980

CONSTITUENT	TOTAL CONSTITUENT ANALYSIS	PER DRUM TOTAL CONSTITUENT ANALYSIS (MAX.VAL.)	WATER SHAKE LEACHATE
1. % Water (%)	not a water system [1]	5% [2]	-
2. % Solids (%)	68.8%	90%	0.089%
3. pH	not a water system	-	6.75
4. C.O.D. (mg/l)	14113 ppm	20,000 ppm	1320 mg/l
5. T.O.C. (mg/l)	3750 ppm	5,000 ppm	351 mg/l
6. Oil/Grease (%)	0.03%	0.2%	none, not H_2O soluble
7. T.D.S. (mg/l)	not a water system	-	same as 2 above
8. T.V.S. (%)	6.6%	10%	10.7%
9. Spec Conductance (umho/cm)	not a water system	-	239
10. Ammonia-Nitrogen (mg/l)	none 7.5 ppm	10 ppm	0.7 mg/l
11. Phenol (mg/l)	61 ppm	150 ppm	5.7 mg/l
12. Cyanide (mg/l)	.05 ppm	0.05 ppm	.005 mg/l
13. Arsenic (mg/l)	not present	< 20 ppm	-
14. Cadmium	820 ppm	5,000 ppm	0 mg/l
15. Copper (mg/l)	not present		
16. Chromium	74 ppm	0.001%	0 mg/l
17. Lead	46 ppm	0.006%	0 mg/l
18. Barium	0	0	0
19. Tin	900 ppm	3%	0
20. Zinc	1800 ppm	6%	5.8 mg/l
21. Selenium (mg/l)	not present		
22. Silver (mg/l)	not present		
23. OTHER CONSTITUENTS			
24. Ketones	31%	50%	none detected by GC
25. Styrene - Acrylic Polymers	4.5%	50%	none not H_2O soluble
26. Clays - Limestone	64.3%	90%	none not H_2O soluble
27.			
28.			
29.			

(Note 1) Arsenic would be present only as a contaminant in TiO_2 pigment as purchased

(Note 2) Water possibly present, due to condensation or rain

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#3

ORIGINAL (Red)

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WASTE ANALYSIS

NAME OF GENERATOR Armstrong Cork Co., Lancaster Floor Plant

NAME OF WASTE Type Waste for Stabatrol - Analysis # 3

ANALYSIS PERFORMED BY CAC, CRP, Lancaster Labs DATE OF ANALYSIS January, 1980

CONSTITUENT	TOTAL CONSTITUENT ANALYSIS	PER DRUM TOTAL CONSTITUENT ANALYSIS (MAX.VAL.)	WATER SHAKE LEACHATE
1. % Water (%)	< 1 not a water system	5%[2]	-
2. % Solids (%)	61.1%	90%	0.154%
3. pH	not a water system	-	none 6.55
4. C.O.D. (mg/l)	8768 ppm	16,000 ppm	880 mg/l
5. T.O.C. (mg/l)	2580 ppm	5,000 ppm	259 mg/l
6. Oil/Grease (%)	3.49%	10%	not H_2O soluble
7. T.D.S. (mg/l)	not a water system	-	same as 2 above
8. T.V.S. (%)	29.99%	50%	26.7%
9. Spec Conductance (umho/cm)	-	-	343
10. Ammonia-Nitrogen (mg/l)	105 ppm	200 ppm	10.5 mg/l
11. Phenol (mg/l)	0.3 ppm	1 ppm	C.027 mg/l
12. Cyanide (mg/l)	.05 ppm	.05 ppm	.005 mg/l
13. Arsenic (mg/l)	not present	< 20 ppm[1]	-
14. Cadmium	880 ppm	20,000 ppm	0 mg/l
15. Copper (mg/l)	not present		
16. Chromium	71 ppm	10,000 ppm	0
17. Lead	44 ppm	5,000 ppm	0
18. Barium	not present	0	0
19. Tin	880 ppm	10,000 ppm	0
20. Zinc	4400 ppm	60,000 ppm	0
21. Selenium (mg/l)	not present		
22. Silver (mg/l)	not present		
23. OTHER CONSTITUENTS			
24. Vinyl plus Hydrocarbon Res.	18.4%	95%	none not H_2O soluble
25. Limestone and Clay	42%	95%	none detected by GC
26. Light Hydrocarbon Oils	39%	50%	none detected by GC
27.			
28.			
29.			

(Note 1) Arsenic would be present only as a contaminant in TiO_2 pigment as purchased

(Note 2) Water possibly present, due to condensation or rain

2/80

#4

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ORIGINAL (Red)

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WASTE ANALYSIS

NAME OF GENERATOR Armstrong Cork Co., Lancaster Floor Plant

NAME OF WASTE Type Waste for Stabetrol - Analysis # 4

ANALYSIS PERFORMED BY CAC, CRP, Lancaster Labs DATE OF ANALYSIS January, 1981

CONSTITUENT	TOTAL CONSTITUENT ANALYSIS	PER DRUM TOTAL CONSTITUENT ANALYSIS (MAX.VAL.)	WATER SHAKE LEACHATE
1. % Water (%)	not a water system (1)	5% (2)	-
2. % Solids (%)	85.3%	95%	0.022%
3. pH	not a water system	-	7.72
4. C.O.D. (mg/l)	657 ppm	1200 ppm	30 mg/l
5. T.O.C. (mg/l)	267 ppm	600 ppm	12.2 mg/l
6. Oil/Grease (%)	9.45%	45%	not H_2O soluble
7. T.D.S. (mg/l)	not a water system	-	same as 2 above
8. T.V.S. (%)	.0.54%	-	9.5%
9. Spec Conductance (umho/cm)	not a water system	-	25
10. Ammonia-Nitrogen (mg/l)	31 ppm	100 ppm	1.4 mg/l
11. Phenol (mg/l)	1.4 ppm	5 ppm	.063 mg/l
12. Cyanide (mg/l)	.05 ppm	0.05 ppm	.005 mg/l
13. Arsenic (mg/l)	not present	< 20 ppm (1)	-
14. Cadmium	0.090%	2%	0
15. Copper (mg/l)	not present		
16. Chromium	0.012%	1%	0
17. Lead	0.0045%	0.5%	0
18. Barium	0	0	0
19. Tin	0.096%	2%	0
20. Zinc	0.197%	6%	0
21. Selenium (mg/l)	not present		
22. Silver (mg/l)	not present		
23. OTHER CONSTITUENTS			
24. Hydrocarbon Resins - Oils	23%*	95%	none detected by GC not water soluble
25. Clays - Limestone	76%	90%	not water soluble
26.			
27.			
28.			
29.			

(Note 1) Arsenic would be present only as a contaminant in TiO_2 pigment as purchased

(Note 2) Water possibly present, due to condensation or rain

*Includes #6 Above

#5

3131

CONFIDENTIAL

ORIGINAL (Red)

WASTE ANALYSIS

NAME OF GENERATOR Armstrong Cork Co., Lancaster-Floor Plant

NAME OF WASTE Type Waste for Stabetrol - Analysis #5

ANALYSIS PERFORMED BY CAC, CRP, Lancaster Labs DATE OF ANALYSIS January, 1981

CONSTITUENT	TOTAL CONSTITUENT ANALYSIS	PER DRUM TOTAL CONSTITUENT ANALYSIS (MAX.VAL.)	WATER SHAKE LEACHATE
1. % Water (%)	<1 not a water system	5%[2]	-
2. % Solids (%)	77.2%	100%	0.085%
3. pH	not a water system	—	6.87
4. C.O.D. (mg/l)	7896 ppm	14,000 ppm	790 mg/l
5. T.O.C. (mg/l)	2058 ppm	5,000 ppm	206 mg/l
6. Oil/Grease (%)	11.14%	45%	not H_2O soluble
7. T.D.S. (mg/l)	not a water system	—	same as 2 above
8. T.V.S. (%)	32.10%	95%	12.8%
9. Spec Conductance (umho/cm)	not a water system	—	181
10. Ammonia-Nitrogen (mg/l)	12.6 ppm	24 ppm	1.26 mg/l
11. Phenol (mg/l)	44 ppm	100 ppm	4.4 mg/l
12. Cyanide (mg/l)	<.05 ppm	<.05 ppm	<0.05 ppm
13. Arsenic (mg/l)	<20 ppm[1]	<20 ppm	0.01 mg/l
14. Cadmium	780 ppm	20,000 ppm	0
15. Copper (mg/l)	not present		
16. Chromium	0	0	0
17. Lead	45 ppm	500 ppm	0
18. Barium	0	0	0
19. Tin	780 ppm	10,000 ppm	0
20. Zinc	1610 ppm	60,000 ppm	0
21. Selenium (mg/l)	not present		
22. Silver (mg/l)	not present		
23. OTHER CONSTITUENTS			
24. Solvesso 150 (hydrocarbon)	23%	40%	none detected by GC not water soluble
25. Stabilized Vinyl Resin	14%	100%	not water soluble
26. Limestone - Clay - TiO_2	52%	90%	not water soluble
27.			
28.			
29.			

(Note 1) Arsenic would be present only as a contaminant in TiO_2 pigment as purchased

(Note 2) Water possibly present, due to condensation or rain

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#6

3132

CONFIDENTIAL

ORIGINAL (Red)

WASTE ANALYSIS

NAME OF GENERATOR Armstrong Cork Co., Lancaster Floor Plant

NAME OF WASTE Type Waste for Stabatrol - Analysis #6

ANALYSIS PERFORMED BY CAC, CRR, Lancaster Labs DATE OF ANALYSIS January, 1980

CONSTITUENT	TOTAL CONSTITUENT ANALYSIS	PER DRUM TOTAL CONSTITUENT ANALYSIS (MAX.VAL.)	WATER SHAKE LEACHATE
1. % Water (%)	not a water system. (1)	5% (2)	-
2. % Solids (%)	31.9%	75%	0.949%
3. pH	not a water system	-	7.05
4. C.O.D. (mg/l)	132,500 ppm	200,000 ppm	13,280 mg/l
5. T.O.C. (mg/l)	3,830 ppm	7,000 ppm	384 mg/l
6. Oil/Grease (%)	5.88%	15%	not water soluble
7. T.D.S. (mg/l)	not a water system	-	same as 2 above
8. T.V.S. (%)	25.69%	95%	38.9%
9. Spec Conductance (umho/cm)	not a water system	-	1862
10. Ammonia-Nitrogen (mg/l)	117 ppm	200 ppm	11.76 mg/l
11. Phenol (mg/l)	0.3 ppm	1 ppm	0.027 mg/l
12. Cyanide (mg/l)	< 0.05 ppm	< 0.05	< 0.005 mg/l
13. Arsenic (mg/l)	not present	< 20 ppm	-
14. Cadmium	78 ppm	20,000	0
15. Copper (mg/l)	not present		
16. Chromium	510 ppm	10,000 ppm	21.2 mg/l
17. Lead	2100 ppm	5,000 ppm	6.2 mg/l
18. Barium	170 ppm	10,000 ppm	0
19. Tin	0	0	0
20. Zinc	7150 ppm	60,000 ppm	155 mg/ml
21. Selenium (mg/l)	not present		
22. Silver (mg/l)	not present		
23. OTHER CONSTITUENTS			
24. Vinyl Resin, Pigments	21%	55%	not water soluble
25. Nitropropane, Isopropylacetate	68%	80%	0.04% by GC
26. Inorganic Fillers	4%	10%	not water soluble
27.			
28.			
29.			

(Note 1) Arsenic would be present only as a contaminant in TiO_2 pigment as purchased

(Note 2) Water possibly present, due to condensation or rain

#7

3133

CONFIDENTIAL

ORIGINAL (Red)

WASTE ANALYSIS

NAME OF GENERATOR Armstrong Cork Co., Lancaster Floor Plant

NAME OF WASTE Type Waste for Stabatrol - Analysis # 7

ANALYSIS PERFORMED BY CAC, CRP, Lancaster Labs DATE OF ANALYSIS January, 1980

CONSTITUENT	TOTAL CONSTITUENT ANALYSIS	PER DRUM TOTAL CONSTITUENT ANALYSIS (MAX.VAL.)	WATER SHAKE LEACHATE
1. % Water (%)	< 1 not a water system	5%[2]	-
2. % Solids (%)	65.7%	75%	3.696%
3. pH	not a water system	-	7.21
4. C.O.D. (mg/l)	531,300 ppm	575,000 ppm	53,409 mg/l
5. T.O.C. (mg/l)	134,000 ppm	150,000 ppm	13,528 mg/l
6. Oil/Grease (%)	2.12%	5%	not water soluble
7. T.D.S. (mg/l)	not a water system	-	same as 2 above
8. T.V.S. (%)	18.29%	25%	92%
9. Spec Conductance (umho/cm)	not a water system	-	291
10. Ammonia-Nitrogen (mg/l)	27 ppm	50 ppm	2.66 mg/l
11. Phenol (mg/l)	0.2 ppm	.5 ppm	0.016 mg/l
12. Cyanide (mg/l)	< .05 ppm	< 0.05 ppm	< 0.005 mg/l
13. Arsenic (mg/l)	not present	< 20 ppm[1]	
14. Cadmium	0.036%	2%	0
15. Copper (mg/l)	not present		
16. Chromium	40 ppm	500 ppm	0
17. Lead	130 ppm	500 ppm	0
18. Barium	0	0	0
19. Tin	0	0	0
20. Zinc	5900 ppm	60,000 ppm	3.3 mg/l
21. Selenium (mg/l)	not present		
22. Silver (mg/l)	not present		
23. OTHER CONSTITUENTS			
24. Polyols	35%*	45%	3.7%
25. Clays	65%	90%	not water soluble
26.			
27.			
28.			
29.			

(Note 1) Arsenic would be present only as a contaminant in TiO_2 pigment as purchased

(Note 2) Water possibly present, due to condensation or rain

*Includes #6 Above

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#8

3134 CONFIDENTIAL

ORIGINAL (Red)

WASTE ANALYSIS

NAME OF GENERATOR Armstrong Cork Co., Lancaster Floor Plant

NAME OF WASTE Type Waste for Stabetrol - Analysis # 8

ANALYSIS PERFORMED BY CAC, CRP, Lancaster Labs DATE OF ANALYSIS January, 1980

CONSTITUENT	TOTAL CONSTITUENT ANALYSIS	PER DRUM TOTAL CONSTITUENT ANALYSIS (MAX.VAL.)	WATER SHAKE LEACHATE
1. % Water (%)	not a water system [1]	5% [2]	-
2. % Solids (%)	79.8%	90%	0.118%
3. pH	not a water system	—	7.05
4. C.O.D. (mg/l)	14,000 ppm	20,000 ppm	1438 mg/l
5. T.O.C. (mg/l)	2,950 ppm	5,000 ppm	296 mg/l
6. Oil/Grease (%)	13.9%	20%	not water soluble none
7. T.D.S. (mg/l)	not a water system	—	same as 2 above
8. T.V.S. (%)	57.30%	70%	20.3%
9. Spec Conductance (umho/cm)	not a water system	—	354
10. Ammonia-Nitrogen (mg/l)	36 ppm	50 ppm	3.64 mg/l
11. Phenol (mg/l)	14 ppm	30 ppm	1.4 mg/l
12. Cyanide (mg/l)	< 0.05 ppm	< 0.05 ppm	< 0.005 mg/l
13. Arsenic (mg/l)	not present	< 20 ppm [1]	
14. Cadmium	0	0	0
15. Copper (mg/l)	not present		
16. Chromium	43 ppm	500 ppm	0.76 mg/l
17. Lead	160 ppm	1000 ppm	0
18. Barium	0	0	0
19. Tin	110 ppm	1,000 ppm	0
20. Zinc	11,460 ppm	60,000 ppm	2.79 mg/l
21. Selenium (mg/l)	not present		
22. Silver (mg/l)	not present		
23. OTHER CONSTITUENTS			
24. 1,1,1, Trichloroethane	20%	40%	none detected by GC
25. Stabilized Vinyl Resins	38%	80%	not water soluble
26. Clay & Limestone	28%	90%	not water soluble
27.			
28.			
29.			

(Note 1) Arsenic would be present only as a contaminant in TiO_2 pigment as purchased

(Note 2) Water possibly present, due to condensation or rain

#9

3135

CONFIDENTIAL

WASTE ANALYSIS

ORIGINAL (Red)

NAME OF GENERATOR Armstrong Cork Co., Lancaster Floor Plant

NAME OF WASTE Type Waste for Stabatrol - Analysis # 9

ANALYSIS PERFORMED BY CAC, CRP, Lancaster Labs DATE OF ANALYSIS January, 1980

CONSTITUENT	TOTAL CONSTITUENT ANALYSIS	PER DRUM TOTAL CONSTITUENT ANALYSIS (MAX.VAL.)	WATER SHAKE LEACHATE
1. % Water (%)	not a water system[1]	5%[2]	-
2. % Solids (%)	64.7%	80%	0.054%
3. pH	not a water system	-	7.06
4. C.O.D. (mg/l)	135,400 ppm	200,000 ppm	13,567 mg/l
5. T.O.C. (mg/l)	23,100 ppm	50,000 ppm	2,314 mg/l
6. Oil/Grease (%)	0.064%	5%	none not water soluble
7. T.D.S. (mg/l)	not a water system	-	same as 2 above
8. T.V.S. (%)	13.95%	30%	29.8%
9. Spec Conductance (umho/cm)	not a water system	-	167
10. Ammonia-Nitrogen (mg/l)	20 ppm	40 ppm	1.96 mg/l
11. Phenol (mg/l)	15 ppm	30 ppm	1.5 mg/l
12. Cyanide (mg/l)	< .05 ppm	< 0.05 ppm	< 0.005 mg/l
13. Arsenic (mg/l)	not present	< 20 ppm	
14. Cadmium	67 ppm	10,000 ppm	0
15. Copper (mg/l)	not present		
16. Chromium	24 ppm	200 ppm	0
17. Lead	0	0	0
18. Barium	0	0	0
19. Tin	80 ppm	1,000 ppm	0
20. Zinc	1460 ppm	60,000 ppm	2.3 mg/l
21. Selenium (mg/l)	not present		
22. Silver (mg/l)	not present		
23. OTHER CONSTITUENTS			
24. Vinyl, Styrene, Acrylic Res.	9%	20%	not water soluble
25. Ketones, THF	25%	40%	none detected by GC
26. Limestone - Clay	65%	90%	not water soluble
27.			
28.			
29.			

(Note 1) Arsenic would be present only as a contaminant in TiO_2 pigment as purchased

(Note 2) Water possibly present, due to condensation or rain

#10

3136

CONFIDENTIAL ORIGINAL (Red)

WASTE ANALYSIS

NAME OF GENERATOR Armstrong Cork Co., Lancaster Floor Plant

NAME OF WASTE Type Waste for Stabatrol - Analysis # 10

ANALYSIS PERFORMED BY CAC, CRP, Lancaster Labs DATE OF ANALYSIS January, 1980

CONSTITUENT	TOTAL CONSTITUENT ANALYSIS	PER DRUM TOTAL CONSTITUENT ANALYSIS (MAX.VAL.)	WATER SHAKE LEACHATE
1. % Water (%)	not a water system	5%[2]	-
2. % Solids (%)	85.2%	95%	0.321%
3. pH	not a water system	-	4.20
4. C.O.D. (mg/l)	34,500 ppm	50,000 ppm	3135 mg/l
5. T.O.C. (mg/l)	10,040 ppm	20,000 ppm	913 mg/l
6. Oil/Grease (%)	4.33%	10%	not water soluble
7. T.D.S. (mg/l)	not a water system	-	same as 2 above
8. T.V.S. (%)	36.77%	60%	38.4%
9. Spec Conductance (umho/cm)	not a water system	-	938
10. Ammonia-Nitrogen (mg/l)	28 ppm	50 ppm	2.52 mg/l
11. Phenol (mg/l)	0.5 ppm	1 ppm	0.043 mg/l
12. Cyanide (mg/l)	< .05 ppm	< .05 ppm	< 0.005
13. Arsenic (mg/l)	not present	< 20 ppm[1]	
14. Cadmium	36 ppm	5,000 ppm	0
15. Copper (mg/l)	not present		
16. Chromium	73 ppm	500 ppm	0
17. Lead	0	0	0
18. Barium	0		0
19. Tin	0	0	0
20. Zinc	1,530 ppm	60,000 ppm	29 mg/l
21. Selenium (mg/l)	not present		
22. Silver (mg/l)	not present		
23. OTHER CONSTITUENTS			
24. Acrylates	15%	40%	none detected by GC
25. Acrylated Polyesters	31%	60%	not water soluble
26. Clays	64%	80%	not water soluble
27.			
28.			
29.			

(Note 1) Arsenic would be present only as a contaminant in TiO_2 pigment as purchased

(Note 2) Water possibly present, due to condensation or rain

sae - 2/80

#11

3137

CONFIDENTIAL
ORIGINAL
(Red)

WASTE ANALYSIS

NAME OF GENERATOR Armstrong Cork Co., Lancaster Floor Plant

NAME OF WASTE Type Waste for Stabatrol - Analysis # 11

ANALYSIS PERFORMED BY CAC, CRP, Lancaster Labs DATE OF ANALYSIS January, 1980

CONSTITUENT	TOTAL CONSTITUENT ANALYSIS	PER DRUM TOTAL CONSTITUENT ANALYSIS (MAX.VAL.)	WATER SHAKE LEACHATE
1. % Water (%)	<1 not a water system	5%[2]	-
2. % Solids (%)	64.9%	80%	0.095%
3. pH	not a water system	-	5.27
4. C.O.D. (mg/l)	352,000 ppm	500,000 ppm	28,200 mg/l
5. T.O.C. (mg/l)	83,500 ppm	110,000 ppm	6,688 mg/l
6. Oil/Grease (%)	0.78%	2%	not water soluble
7. T.D.S. (mg/l)	not a water system	-	same as 2 above
8. T.V.S. (%)	28.90%	90%	21.5%
9. Spec Conductance (umho/cm)	not a water system	-	291
10. Ammonia-Nitrogen (mg/l)	23 ppm	50 ppm	1.82 mg/l
11. Phenol (mg/l)	65 ppm	110 ppm	5.2 mg/l
12. Cyanide (mg/l)	<.05 ppm	<.05 ppm	<0.005 mg/l
13. Arsenic (mg/l)	not present	<20 ppm[1]	
14. Cadmium	0.0080%	0.05%	0
15. Copper (mg/l)	not present		
16. Chromium	98 ppm	500 ppm	0
17. Lead	0	0	0
18. Barium	0	0	0
19. Tin	120 ppm	1,000 ppm	0
20. Zinc	1160 ppm	60,000 ppm	3 mg/l
21. Selenium (mg/l)	not present		
22. Silver (mg/l)	not present		
23. OTHER CONSTITUENTS			
24. Acrylic Resin	9%	30%	not water soluble
25. Nitropropanes, Cell. Ace.	35%	40%	0.08% by GC
26. Clays, Limestones, Pigments	47%	90%	not water soluble
27. Cellulose Resin	9%	30%	not water soluble
28.			
29.			

(Note 1) Arsenic would be present only as a contaminant in TiO_2 pigment as purchased

(Note 2) Water possibly present, due to condensation or rain

DAY MISCIBILITY TEST

CONFIDENTIAL 3138

ORIGINAL (Red)

SAMPLE Armstrong Corp - Without absorbent. Composite

SAMPLE WEIGHT 200 g WATER VOLUME 800 ml

SHAKE TABLE STROKE 1" SHAKE TABLE spm 62

LINER SAMPLE NUMBER Mix 3 Sample 1

BEFORE

LINER DENSITY 129.7 LINER PERMEABILITY $< 10^{-9}$

LINER PENETRATION RESISTANCE > 700 psi

LINER APPEARANCE : 1 X smooth surface. 1 root hair ~ 2 cm long. 2 discolorations ~ 1 cm dia

20 X cement spots scattered evenly, miner pits ~ 2 -. 3 mm dia

DATE STARTED April 21, 1980 DATE FINISHED May 21, 1980

AFTER

LINER DENSITY 130.5 LINER PERMEABILITY $< 10^{-9}$

LINER PENETRATION RESISTANCE > 700 psi

LINER APPEARANCE: 1 X surface covered with residue solvent partially removes residue, surface still smooth.

20 X Solvent area same as before except residue still in pits.

COMPRESSIVE STRENGTH

ORGANIC CHEMICALS PRESENT IN SLUDGE: see attached analysis

COMMENTS Residue had no affect on sample, solvent had no affect either.

Enclosure 15